Psittacosis

1. DISEASE REPORTING

A. Purpose of Reporting and Surveillance

1. To identify sources of transmission (e.g., a pet shop or poultry processing plant) and to prevent further transmission from such sources.
2. When the source is a risk for only to a few individuals (e.g., a pet bird with avian chlamydiosis), to inform those individuals how they can reduce their risk of exposure.

B. Legal Reporting Requirements

1. Health care providers: notifiable to local health jurisdiction within 3 work days
2. Hospitals: notifiable to local health jurisdiction within 3 work days
3. Laboratories: no requirements for reporting
4. Veterinarian: avian chlamydiosis is immediately notifiable to Washington State Department of Agriculture or to the local health jurisdiction
5. Local health jurisdictions: notifiable to DOH Communicable Disease Epidemiology Section (CDES) within 7 days of case investigation completion or summary information required within 21 days

C. Local Health Jurisdiction Investigation Responsibilities

1. **If bioterrorism is suspected, immediately report the case to DOH: 1-877-539-4344.**
2. Facilitate the transport of specimens to DOH Public Health Laboratories (PHL) for confirmatory testing.
3. Identify potentially exposed persons and educate them about signs and symptoms of disease to facilitate early diagnosis.
4. Report all *probable* and *confirmed* cases to CDES (see definitions below). Complete the psittacosis report form (http://www.doh.wa.gov/notify/forms/psitt.pdf) and enter the data in the Public Health Issues Management System (PHIMS).

2. THE DISEASE AND ITS EPIDEMIOLOGY

A. Etiologic Agent

Chlamydophila (formerly called *Chlamydia*) *psittaci* is an obligate intracellular bacteria.

B. Description of Illness

Psittacosis (also known as ornithosis and parrot fever) usually presents as an acute febrile respiratory illness. However, the severity of the disease ranges from asymptomatic infections to severe pneumonia. Symptoms commonly include fever, chills, headache, muscle aches, and nonproductive cough that can be associated with shortness of breath. An enlarged spleen and nonspecific rash can also occur. Rarely, *C. psittaci* can affect organ systems other than the respiratory tract and result in complications such as endocarditis, myocarditis, hepatitis, and encephalitis. Death from psittacosis is rare.

C. Psittacosis in Washington State

DOH receives 0 to 4 reports of psittacosis per year. In the United State, illness is commonly associated with indoor exposure to pet birds and less commonly farm or wild birds. Risk groups include bird owners, pet shop employees, poultry farmers, veterinarians, and workers in abattoirs and processing plants. Outbreaks of psittacosis in poultry processing plants have been reported in the United States.

D. Reservoirs

The primary reservoir is psittacine (parrot-type) birds such as parakeets, parrots, lovebirds and macaws but chlamydial organisms have been isolated from more than 100 species of birds including poultry, pigeons, canaries, and sea birds. Birds that appear to be healthy can be carriers and shed the infectious agent intermittently for weeks to months, particularly when subjected to the stress of crowding or shipping.

E. Modes of Transmission

Transmission occurs when a person inhales *C. psittaci* organisms that have been aerosolized from dried feces or respiratory tract secretions of infected birds. Other modes of transmission include direct mouth-to-beak contact and handling infected birds' plumage and tissues. Person-to-person transmission has been suggested but not proven.

F. Incubation Period

The incubation period is generally 5 to 14 days but can be as long as 4 weeks.

G. Period of Communicability

Person-to-person transmission has been suggested but not proven.

Apparently healthy birds can be carriers for life, resulting in intermittent shedding of the organism. Shedding may be precipitated by any stress exerted on the bird (e.g., transport, change of feed, a new cage mate, chilling). Such stress can also lead to the onset of overt disease in the bird.

H. Treatment

Tetracyclines are the drugs of choice for adults. Remission of symptoms usually is evident within 48 to 72 hours. However, relapse can occur, and treatment must continue for at least 10 to 14 days after fever abates.

3. CASE DEFINITIONS

A. Clinical Description

An illness characterized by fever, chills, headache, photophobia, cough, and myalgia

B. Laboratory Criteria for Diagnosis

1. Isolation of *Chlamydia psittaci* from respiratory secretions, or
2. Fourfold or greater increase in antibody against *C. psittaci* by complement fixation or microimmunofluorescence (MIF) to a reciprocal titer of greater than or equal to 32 between paired acute- and convalescent-phase serum specimens, or

3. Presence of immunoglobulin M antibody against *C. psittaci* by MIF to a reciprocal titer of greater than or equal to 16

C. Case Classification (1996)

Probable: a clinically compatible case that is epidemiologically linked to a confirmed case or that has supportive serology (e.g., *C. psittaci* titer of ≥ 32 in one or more serum specimens obtained after onset of symptoms)

Confirmed: a clinically compatible case that is laboratory confirmed

D. Comment

The serologic findings by CF also may occur as a result of infection with *Chlamydia pneumoniae* or *Chlamydia trachomatis*. The MIF might be more specific for infection with *C. psittaci*, but experience with and availability of this newer test are more limited.

4. DIAGNOSIS AND LABORATORY SERVICES

A. Laboratory Diagnosis

Psittacosis is most commonly diagnosed by serologic testing. Antibodies to *C. psittaci* can be detected using microimmunofluorescence (MIF), complement fixation (CF), and immunofluorescent antibody tests (IFA). MIF is the most sensitive and specific of these tests, however, there is still some cross-reactivity with other chlamydiae species, such as *C. pneumoniae*, *C. trachomatis* and *C. felis*. Thus, all tests are imperfect.

C. psittaci can also be isolate from sputum, pleural fluid, and clotted blood, but is rarely done due to technical difficulties and safety concerns in the laboratory. Polymerase chain reaction (PCR) assays can detect *C. psittaci* nucleic acid in clinical specimens and also distinguish *C. psittaci* from other chlamydial species but are not routinely available.

Confirmatory laboratory testing should be performed by a reference laboratory such as the CDC.

B. Tests Available at Public Health Laboratories (PHL)

PHL does not perform testing for psittacosis but will forward specimens to the CDC. Contact Communicable Disease Epidemiology Section for approval prior to submitting specimens.

C. Specimen Collection

Acute serum should be collected at the first clinical encounter and convalescent serum should be collected at least 2 weeks after the first specimen. A third serum sample collected 4 to 6 weeks after the acute sample might be necessary to confirm the diagnosis since treatment with antibiotics can delay or diminish the antibody response. For best results, acute and convalescent sera should be tested simultaneously at the same laboratory.

Acute and convalescent sera should be refrigerated and transported cold. Specimens should be submitted with a completed DOH PHL Serology form available at: http://www.doh.wa.gov/EHSPHL/PHL/Forms/Serology.pdf.

5. ROUTINE CASE INVESTIGATION

A. Evaluate the Diagnosis

Review the clinical presentation and laboratory results. **Confirmatory laboratory testing should be performed by a reference laboratory such as CDC.** Facilitate submission of laboratory specimens to PHL for confirmation at CDC.

B. Identify Source of Infection

Review clinical presentation and history to determine appropriate potential exposures. Investigate possible exposures during the period 5 days to 4 weeks (particularly 5–14 days) before onset, including a history of:

1. Contact with pet birds,
2. Occupational exposure to wild or domestic birds and their droppings,
3. Pet shop visit (even without direct bird contact), and
4. Work in a laboratory.

C. Identify Potentially Exposed Persons

Identify and contact persons who participated with the case in any of the activities listed above. If any are ill, inform them (or their physician) of possible exposure, in order to facilitate proper diagnosis and therapy.

D. Environmental Evaluation

Notify local environmental health program of human cases. A follow-up investigation into the source of the bird infection, quarantine and treatment will be needed. This response should be in accordance with the current "Compendium of Measures To Control *Chlamydophila psittaci* Infection Among Humans (Psittacosis) and Pet Birds (Avian Chlamydiosis), 2008" found at: http://www.nasphv.org/Documents/Psittacosis.pdf.

6. CONTROLLING FURTHER SPREAD

A. Infection Control Recommendations / Case Management

1. Hospitalized patients should be cared for using standard infection control precautions.
2. Work and child care restrictions are not needed.

B. Contact Management

Household and other close contact are not considered at increased risk since person-to-person transmission is very unlikely.

C. Management of Other Exposed Persons

Other persons who may have been exposed to the same source as the case should be educated regarding the signs and symptoms of psittacosis and told to seek medical attention if symptoms develop.

7. MANAGING SPECIAL SITUATIONS

A. Avian Chlamydiosis (*C. psittaci* infection in birds)

When avian chlamydiosis is diagnosed by a veterinarian, public health should interview persons who have been exposed to the bird(s) and instruct them to monitor themselves for symptoms of psittacosis. In addition, actions need to be taken to prevent further spread from the infected bird. Detailed instructions for this type of follow-up can be found in the current "Compendium of Measures to Control *Chlamydophila psittaci* Infection among Humans (Psittacosis) and Pet Birds (Avian Chlamydiosis), 2008" available at http://www.nasphv.org/Documents/Psittacosis.pdf.

Note: For additional regulations regarding the prevention of psittacosis see WAC 246-100-201: Birds—Measures to Prevent Psittacosis available at http://apps.leg.wa.gov/WAC/default.aspx?cite=246-100-201.

8. ROUTINE PREVENTION

A. Vaccine Recommendations

There is no vaccine for psittacosis.

B. Prevention Recommendations

The following recommendations are taken from "Compendium of Measures to Control *Chlamydophila psittaci* Infection among Humans (Psittacosis) and Pet Birds (Avian Chlamydiosis), 2008" available at http://www.nasphv.org/Documents/Psittacosis.pdf.

1. **Educate persons at risk.** Inform all persons in contact with birds or bird-contaminated materials about the zoonotic nature of psittacosis.
2. Bird caretakers with respiratory or influenza-like symptoms should seek medical attention and inform their health care provider about bird contact.
3. **Protect persons at risk.** When cleaning cages or handling infected birds, caretakers should wear protective clothing, which includes gloves, eyewear, a disposable surgical cap, and an appropriately fitted respirator with N95 or higher rating.
4. **Maintain accurate records of all bird-related transactions for at least one year to aid in identifying sources of infected birds and potentially exposed persons.** Records should include the date of purchase, species of birds purchased, individual bird identification, source of birds, and any identified illnesses or deaths among birds. In addition, the seller should record the name, address, a customer and individual bird identification (e.g., band or microchip number).
5. **Avoid purchasing or selling birds that have signs consistent with avian chlamydiosis.** Signs include lethargy, ocular or nasal discharge, diarrhea, ruffled feathers, or low body weight.
6. **Isolate newly acquired, ill, or exposed birds.** Isolation should include housing in a separate air space from other birds and non-caretakers. Isolate birds, including those that have been to shows, exhibitions, fairs, and other events for at least 30 days and test before adding them to a group.
7. **Test birds before they are to be boarded or sold on consignment.**

8. **Screen birds with frequent public contact (e.g., bird encounters, long term care facilities, schools) routinely for anti-chlamydial antibodies and DNA or bacterial protein**. Such testing may be used to reduce potential human exposure from birds.
9. **Practice preventive husbandry.** Position cages to prevent the transfer of fecal matter, feathers, food, and other materials from one cage to another. Do not stack cages, and be sure to use solid-sided cages or barriers if cages are adjoining. The bottom of the cage should be made of a wire mesh. Litter that will not produce dust (e.g., newspapers) should be placed underneath the mesh. Clean all cages, food bowls, and water bowls daily. Soiled bowls should be emptied, cleaned with soap and water, rinsed, placed in a disinfectant solution, and rinsed again before reuse. Between occupancies by different birds, cages should be thoroughly scrubbed with soap and water, disinfected, and rinsed in clean running water. Exhaust ventilation should be sufficient to prevent accumulation of aerosols and prevent cross contamination of rooms.
10. **Use disinfection measures.** All surfaces should be thoroughly cleaned of organic debris before disinfection**.** *Chlamydophila psittaci* is susceptible to most disinfectants and detergents as well as heat; however, it is resistant to acid and alkali. Examples of effective disinfectants include 1:1,000 dilution of quaternary ammonium compounds (e.g., Roccal or Zephiran), 1% Lysol or freshly prepared 1:32 dilution of household bleach (i.e., ½ cup/gallon). Many disinfectants are respiratory irritants for both humans and birds and should be used in a well-ventilated area. Avoid mixing a disinfectant with any other product.

Note: For additional regulations to prevent psittacosis see WAC 246-100-201: Birds—Measures to Prevent Psittacosis available at http://apps.leg.wa.gov/WAC/default.aspx?cite=246-100-201.

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UPDATES